

Appln No. 09/578,355

Amdt date May 31, 2005

Reply to Office action of January 31, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 18 (Canceled)

19. (Currently Amended) An audio system for reproducing at least three independent original audio signals at a plurality of reproduction points, the audio system comprising:

at least one processing circuit for producing a processed sound signal from said independent original audio signals, by branching a signal from one of said independent original audio signals, delaying said branched audio signal in accordance with at least one distance between said reproduction points, and attenuating the amplitude level of said delayed audio signal; and

at least one processing circuit for adding said processed sound signal to one of said independent original audio signals other than the independent original audio signals from which said processed sound signal is produced[.];

wherein said at least one processing circuit for producing a processed sound signal attenuates the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

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20. (Currently Amended) An audio system according to claim 19 wherein:

said independent original audio signals comprise at least one front signal, at least one rear signal and a center signal;

said at least one processing circuit for producing a processed sound signal comprises at least one front processing circuit for producing at least one processed front sound signal and a center processing circuit for producing a processed center sound signal;

said at least one front processing circuit produces said at least one processed front sound signal by branching said at least one front signal, delaying said branched at least one front signal in accordance with at least one distance between at least one reproduction point associated with said at least one front signal and at least one other reproduction point, and attenuating the level of said delayed at least one front signal; and

said at least one center processing circuit produces a processed center sound signal by branching said center signal, delaying said branched center signal in accordance with at least one distance between a reproduction point associated with said center signal and at least one other reproduction point, and attenuating the level of said delayed center signal; and

said at least one processing circuit for adding said at least one processed front sound signal and said processed center sound signal to said at least one rear audio signal.

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21. (Previously Presented) An audio system according to claim 20 wherein:

said at least one rear signal comprises a rear left signal and a rear right signal; and

said at least one processed front sound signal comprises a processed front left signal and a processed front right signal.

22 - 23. (Canceled)

24. (Previously Presented) An audio system according to claim 19, wherein said at least one processing circuit for producing a processed sound signal further corrects a frequency characteristic of said processed sound signal.

25. (Currently Amended) An audio system according to claim 19, wherein said independent original audio signals are six audio signals and include an audio signal to be reproduced at a center front position in an audio space, audio signals to be reproduced on a left front side and a right front side in an audio space, audio signals to be reproduced on a left rear side and a right rear side in an audio space, and an audio signal of low frequency.

26. (Previously Presented) An audio system according to claim 25, wherein a device for supplying said six audio signals is a multichannel player unit for reproducing audio data recorded on a recording medium by a multichannel recording system.

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27. (Previously Presented) An audio system according to claim 26, wherein in a case where said six audio signals are recorded on said recording medium to be reproduced by said multichannel player unit:

processed sound signals associated with said audio signals to be reproduced at said center front position and on said left and right front sides, are added to said audio signals to be reproduced on said left and right rear sides; and

processed sound signals associated with said audio signals to be reproduced on said left and right rear sides, are added to said audio signals to be reproduced on said left and right front sides and are added to said audio signals to be reproduced at said center front position.

28. (Previously Presented) An audio system according to claim 26, wherein in a case where said six audio signals are recorded on said recording medium to be reproduced by said multichannel player unit:

processed sound signals associated with said audio signals to be reproduced at said center front position and on said left and right front sides, are added to said audio signals to be reproduced on said left and right rear sides; and

processed sound signals associated with said audio signals to be reproduced on said left and right rear sides are added to said audio signals to be reproduced on said left and right front sides.

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29. (Previously Presented) An audio system according to claim 25, further comprising:

a switch for setting a priority mode to determine a listening point in said audio space which receives the optimum sound, wherein the amplitude levels of said audio signals at said center front position, on said left and right front sides and on said left and right rear sides are changed in accordance with the setting of said switch.

30. (Currently Amended) An audio system for reproducing at least three independent original audio signals each of which is reproduced at a plurality of different reproduction points, comprising:

at least one processing stage for producing a processed sound signal from said independent original audio signals to be reproduced at a plurality of predetermined reproduction points located far from a given reproduction point, said at least one processing stage comprising: a plurality of branch-processing stages; a first add-processing stage; and a processed sound generating stage;

said branch-processing stages each branching a signal from one of said independent original audio signals,

said first add-processing stage adding said branched audio signals to each other,

said processed sound generating stage delaying said added audio signal in accordance with the distance from said given reproduction point to said predetermined reproduction points

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located far from said given reproduction point, and attenuating the level of said added audio signal;

at least one distribution-processing stage for distributing said processed sound signal to one or a plurality of audio signals to be reproduced at said predetermined reproduction points; and

at least one second signal add-processing stage, each for adding said distributed signals to one of said independent original audio signals other than the independent original audio signals from which the signals are branched[[.]];

wherein said at least one processing stage attenuates the level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

31. (Canceled)

32. (Previously Presented) An audio system according to claim 30, wherein said at least one processing stage further corrects a frequency characteristic of said processed sound signal.

33. (Currently Amended) An audio system according to claim 30, wherein said independent original audio signals are six audio signals and include an audio signal to be reproduced at a center front position in an audio space, audio signals to be reproduced on a left front side and a right front side in an audio space, audio signals to be reproduced on a left rear side

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and a right rear side in an audio space, and an audio signal of low frequency.

34. (Previously Presented) An audio system according to claim 33, wherein a device for supplying said six audio signals is a multichannel player unit for reproducing audio data recorded on a recording medium by a multichannel recording system.

35. (Previously Presented) An audio system according to claim 34, wherein in a case where said six audio signals are recorded on said recording medium to be reproduced by said multichannel player unit,

audio signals to be reproduced at said center front position and on said left and right front sides, are added to audio signals to be reproduced on said left and right rear sides, respectively, and

audio signals to be reproduced on said left and right rear sides are added to the audio signals to be reproduced on said left and right front sides and at said center front position, respectively.

36. (Previously Presented) An audio system according to claim 34, wherein in a case where said six audio signals are recorded on said recording medium to be reproduced by said multichannel player unit,

audio signals to be reproduced at said center front position and on said left and right front sides, are added to

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the audio signals to be reproduced on said left and right rear sides, respectively, and

audio signals to be reproduced on said left and right rear sides are added to the audio signals to be reproduced on said left and right front sides, respectively.

37. (Previously Presented) An audio system according to claim 33, further comprising:

a switch for setting a priority mode to determine a listening point in said audio space which receives the optimum sound, wherein the signal levels of said audio signals at said center front position, on said left and right front sides and on said left and right rear sides are changed in accordance with the setting of said switch.

38. (Currently Amended) A method of reproducing audio signals reproducing at least three independent original audio signals at a plurality of reproduction points, the method comprising:

producing a processed sound signal from said independent original audio signals, by branching a signal from one of said independent original audio signals, delaying said branched audio signal in accordance with at least one distance between said reproduction points, and attenuating the amplitude level of said delayed audio signal; and

adding said processed sound signal to one of said independent original audio signals other than the independent

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original audio signals from which said processed sound signal is produced[[.]];

wherein said producing a processed sound signal comprises attenuating the amplitude level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

39. (Canceled)

40. (Previously Presented) A method of reproducing audio signals according to claim 38, wherein said producing a processed sound signal comprises correcting a frequency characteristic of said processed sound signal.

41. (Currently Amended) A method of reproducing audio signals according to claim 38, wherein said independent original audio signals are six audio signals and include an audio signal to be reproduced at a center front position in an audio space, audio signals to be reproduced on a left front side and a right front side in an audio space, audio signals to be reproduced on a left rear side and a right rear side in an audio space, and an audio signal of low frequency.

42. (Previously Presented) A method for reproducing audio signals according to claim 41, wherein said six audio signals are supplied from a multichannel player unit for reproducing audio data recorded on a recording medium by a multichannel recording system.

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43. (Previously Presented) A method of reproducing audio signals according to claim 42, wherein said six audio signals are recorded on said recording medium reproduced by said multichannel player unit, the method further comprising:

adding processed sound signals associated with said audio signals to be reproduced at said center front position and on said left and right front sides to said audio signals to be reproduced on said left and right rear sides; and

adding processed sound signals associated with said audio signals to be reproduced on said left and right rear sides to said audio signals to be reproduced on said left and right front sides and to said audio signals to be reproduced at said center front position.

44. (Previously Presented) A method of reproducing audio signals according to claim 42, wherein said six audio signals are recorded on said recording medium reproduced by said multichannel player unit, the method further comprising:

adding processed sound signals associated with said audio signals to be reproduced at said center front position and on said left and right front sides to said audio signals to be reproduced on said left and right rear sides; and

adding processed sound signals associated with said audio signals to be reproduced on said left and right rear sides to said audio signals to be reproduced on said left and right front sides.

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45. (Previously Presented) A method of reproducing audio signals according to claim 41, further comprising:

setting a priority mode to determine a listening point in said audio space which receives the optimum sound, wherein the amplitude levels of said audio signals at said center front position, on said left and right front sides and on said left and right rear sides are changed in accordance with the setting of said mode.

46. (Currently Amended) A method of reproducing audio signals reproducing at least three independent original audio signals each of which is reproduced at a plurality of different reproduction points, the method comprising:

producing a processed sound signal from said independent original audio signals to be reproduced at a plurality of predetermined reproduction points located far from a given reproduction point, by branching a signal from at least two of said independent original audio signals, adding said branched audio signals to each other, delaying said added audio signal in accordance with the distance from said given reproduction point to said predetermined reproduction points located far from said given reproduction point, and attenuating the level of said added audio signal;

distributing said processed sound signal to one or a plurality of audio signals; and

adding said distributed signals to one of said independent original audio signals other than the independent original audio signals from which said signals are branched[.];

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wherein said producing a processed sound signal comprises attenuating the level of said delayed audio signal in accordance with the law of the first wave front (Haas effect).

47. (Canceled)

48. (Previously Presented) A method of reproducing audio signals according to claim 46, wherein said producing a processed sound signal comprises correcting a frequency characteristic of said processed sound signal.

49. (Currently Amended) A method of reproducing audio signals according to claim 46, wherein said independent original audio signals are six audio signals and include an audio signal to be reproduced at a center front position in an audio space, audio signals to be reproduced on a left front side and a right front side in an audio space, audio signals to be reproduced on a left rear side and a right rear side in an audio space, and an audio signal of low frequency.

50. (Previously Presented) A method of reproducing audio signals according to claim 49, wherein said six audio signals are supplied from a multichannel player unit for reproducing audio data recorded on a recording medium by a multichannel recording system.

51. (Previously Presented) A method of reproducing audio signals according to claim 50, wherein said six audio signals

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are recorded on said recording medium reproduced by said multichannel player unit, the method further comprising:

adding audio signals to be reproduced at said center front position and on said left and right front sides to audio signals to be reproduced on said left and right rear sides, respectively; and

adding audio signals to be reproduced on said left and right rear sides to audio signals to be reproduced on said left and right front sides and at said center front position, respectively.

52. (Previously Presented) A method of reproducing audio signals according to claim 50, wherein said six audio signals are recorded on said recording medium reproduced by said multichannel player unit, the method further comprising:

adding audio signals to be reproduced at said center front position and on said left and right front sides to audio signals to be reproduced on said left and right rear sides, respectively; and

adding audio signals to be reproduced on said left and right rear sides to audio signals to be reproduced on said left and right front sides, respectively.

53. (Previously Presented) A method of reproducing audio signals according to claim 49, further comprising:

setting a priority mode to determine a listening point in said audio space which receives the optimum sound, wherein the signal levels of said audio signals at said center front

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position, on said left and right front sides and on said left and right rear sides are changed in accordance with the setting of said mode.

54. (Previously Presented) An audio system according to claim 19 wherein sound signals for the reproduction points are adjusted in accordance with at least one distance between the reproduction points and a listener.